Final

Site Investigation Report
Former Transformer near Building 3798, Parcel 57Q

Fort McClellan
Calhoun County, Alabama

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Executive Summary

In accordance with Contract No. DACA21-96-D-0018, Task Order CK04, IT Corporation (IT) conducted a site investigation at the Former Transformer near Building 3798, Parcel 57Q, Fort McClellan (FTMC), Alabama to determine whether potential site-specific chemicals are present at the site.

IT collected one surface soil sample for polychlorinated biphenyls analysis. Analytical results were compared to final site-specific screening levels (SSSL) and ecological screening values (ESV) developed by IT as part of the human health and ecological risk evaluations associated with site investigations being performed under the Base Realignment and Closure (BRAC) environmental restoration program at FTMC. The results of the comparison indicate that Aroclor 1260 was detected in the surface soil sample at a concentration (0.026 milligrams per kilogram) exceeding ESV but below residential human health SSSL.

The soil sample was collected at the base of a utility pole, which had formerly held an electrical transformer. The electrical transformer had been removed from the utility pole and a small area of soil excavated beneath the transformer. A confirmatory soil sample was collected to determine if polychlorinated biphenyls were present in the soil. Because the affected area is small, the potential impact to ecological receptors is expected to be negligible. Therefore, IT proposes "No Further Action" at the Former Transformer near Building 3798, Parcel 57Q.

1.0 Introduction

The U.S. Army has selected Fort McClellan (FTMC) located in Calhoun County, Alabama, for closure by the Base Realignment and Closure (BRAC) Commission under Public Laws 100-526 and 101-510. The 1990 Base Closure Act, Public Law 101-510 established the process by which U.S. Department of Defense (DOD) installations would be closed or realigned. The BRAC environmental restoration program requires investigation and cleanup of federal properties prior to transfer to the public domain. The U.S. Army is conducting environmental studies of the impact of suspected contaminants at parcels at FTMC under the management of the U.S. Army Corps of Engineers, Mobile District (USACE). The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) at the Former Transformer near Building 3798, Parcel 57Q, under Contract No. DACA21-96-D-0018, Task Order CK04.

This SI Report has been prepared to present specific information and results compiled from the field investigations, including field sampling and analysis, conducted at the Former Transformer near Building 3798, Parcel 57Q.

1.1 Project Description

The Former Transformer near Building 3798, Parcel 57Q was identified as an area to be investigated prior to property transfer. The site was classified as a qualified Category 1 site in the environmental baseline survey (EBS) (Environmental Science and Engineering, Inc. [ESE], 1998). Qualified Category 1 sites are areas where storage, release, or disposal (including migration) has not occurred but which have a non-Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) issue present. The non-CERCLA issue determined for the Former Transformer near Building 3798, Parcel 57Q was the potential presence of polychlorinated biphenyls (PCB).

A site-specific field sampling plan (SFSP) attachment and a site-specific safety and health plan (SSHP) attachment were finalized in September 1998 (IT, 1998a). The SFSP and SSHP were prepared to provide technical guidance for sample collection and analysis at the Former Transformer near Building 3798, Parcel 57Q. The SFSP was used in conjunction with the SSHP as attachments to the installation-wide work plan (IT, 1998b), and the installation-wide sampling and analysis plan (SAP) (IT, 2000). The SAP includes the installation-wide safety and health plan (SHP) and quality assurance plan (QAP).

The SI included field work to collect one surface soil sample to determine if potential site-specific chemicals are present at the Former Transformer near Building 3798, Parcel 57Q and to provide data useful in any future corrective measures and closure activities.

1.2 Purpose and Objectives

The SI program was designed to collect data from site media and provide a level of defensible data and information in sufficient detail to either confirm or rule out the presence of residual chemical contamination at concentrations that would present an unacceptable risk, either to human health or the environment, at the Former Transformer near Building 3798, Parcel 57Q. The conclusions of the SI presented in Section 6.0 are based on the results of the comparison of the analytical results to the final site-specific screening levels (SSSL) and ecological screening values (ESV). The final SSSLs and ESVs were developed by IT as part of the human health and ecological risk evaluations associated with site investigations being performed under the BRAC environmental restoration program at FTMC.

1.3 Site Description

An electrical transformer was previously attached to a power pole located approximately 260 feet southwest of Building 3798 (Figures 1-1 and 1-2). This site is located near Summerall Gate, to the southeast of the road. The closest stream/drainage is approximately 700 feet from the Former Transformer site, east and west.

During a routine site visit (date unknown) representatives from the Alabama Department of Environmental Management (ADEM) and the U.S. Environmental Protection Agency (EPA) noticed a small area of stained soil adjacent to the utility pole (Johnson, 2000). At the direction of ADEM and EPA, FTMC removed the electrical transformer from the utility pole and excavated a small area of soil beneath the transformer (Woodall, 2000).

The soils at this site are classified as Anniston and Allen gravelly loams, 6 to 10 percent slopes, eroded (AcB2) category. This unit consists of friable soils that have developed in old alluvium washed from sandstone and shale onto foot slopes and along the base of mountains. The texture of subsoil ranges from light-gray loam to clay or silty clay loam. The alluvium ranges in thickness from 2 feet to more than 8 feet, and is underlain by highly fractured limestone and shale. Infiltration and runoff are medium, permeability is moderate, and the capacity for available moisture is high. Severely eroded places may be common on the surface, and there are a few shallow gullies.

2.0 Previous Investigations

An EBS was conducted by ESE to document current environmental conditions of all FTMC property (ESE, 1998). The study was to identify sites that, based on available information, have no history of contamination and comply with DOD guidance for fast track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria:

1. Areas where no storage, release, or disposal (including migration) has occurred.
2. Areas where only storage has occurred.
3. Areas of contamination below action levels.
4. Areas where all necessary remedial actions have been taken.
5. Areas of known contamination with removal and/or remedial action underway.
6. Areas of known contamination where required response actions have not been taken.
7. Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the Community Environmental Response Facilitation Act (CERFA) (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, the ADEM, the EPA Region IV, and Calhoun County, as well as a database search of CERCLA-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels. Previous environmental studies have not been conducted at the former transformer near Building 3798, Parcel 57Q.

3.0 Current Site Investigation Activities

3.1 Environmental Sampling

The environmental sampling performed during the SI at the Former Transformer near Building 3798, Parcel 57Q, included the collection of one surface soil sample for chemical analysis. The sample location was determined by observing site physical characteristics noted during a site walkover, and by reviewing historical documents pertaining to activities conducted at the site. The sample location and rationale are summarized in Table 3-1 and the sampling location is shown on Figure 3-1. The sample was submitted for laboratory analyses of site-related parameters listed in Section 3.3.

3.1.1 Surface Soil Sampling

A surface soil sample was collected from one location at the Former Transformer near Building 3798, Parcel 57Q. The sampling location and rationale are presented in Table 3-1 and the sampling location is shown on Figure 3-1. The sample designation and quality assurance/quality control (QA/QC) samples are listed in Table 3-2. The soil sampling location was determined in the field by the on-site geologist based on the sampling rationale and the site topography.

Sample Collection. The surface soil sample was collected from the upper 1-foot of soil with a 3-inch diameter stainless-steel hand auger using the methodology specified in Section 4.9 of the SAP (IT, 2000). The surface soil sample was collected by first removing surface debris, such as rocks and vegetation, from the immediate sample area. The soil was collected with the sampling device and screened with a photoionization detector in accordance with Section 4.5 of the SAP (IT, 2000). The sample was transferred to a clean stainless-steel bowl, homogenized, and placed in the appropriate sample containers. The sample was analyzed for the parameters listed in Table 3-2 using methods outlined in Section 3.3. The sample collection log is included in Appendix A.

3.2 Surveying of Sample Location

The sample location was surveyed using global positioning system survey techniques described in Section 4.2.5 of the SAP (IT, 2000), and conventional civil survey techniques described in Section 4.19 of the SAP (IT, 2000). Horizontal coordinates were referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum (NAD83), 1983. The ground elevation was referenced to the North American Vertical Datum of 1988 (NAVD88). Horizontal coordinates and ground elevation are included in Appendix B.

Table 3-1

Sampling Location and Rationale
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama

Sample Location	Sample Media	Sample Location Rationale
FTB-57Q-GP01	Surface Soil	A surface soil sample was collected from the base of a utility power pole (and former transformer) located approximately 260 feet southwest of Building 3798.

Table 3-2

Surface Soil Sample Designation and QA/QC Sample Quantities
Former Transformer near Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama

Sample Location	Sample Designation	Sample Depth (ft. bgs)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
FTB-57Q-GP01	FTB-57Q-GP01-SS-KL0001-REG	0-1	FTB-57Q-GP01-SS-KL0002-FD	FTB-57Q-GP01-SS-KL0003-FS	FTB-57Q-GP01-SS-KL0001-MS FTB-57Q-GP01-SS-KL0001-MSD	Polychlorinated Biphenyls

FD - Field duplicate
FS - Field split
ft. bgs - feet below ground surface
MS/MSD - Matrix spike/matrix spike duplicate
QA/QC - Quality assurance/quality control
REG- Field sample

3.3 Analytical Program

The analysis performed on the sample collected at the Former Transformer near Building 3798, Parcel 57Q is based on the potential site-specific chemicals historically at the site and EPA, ADEM, FTMC, and USACE requirements. The sample collected at the Former Transformer near Building 3798, Parcel 57Q, was analyzed for PCBs using EPA Method 8082. Data were reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of Appendix B of the SAP [IT, 2000]). Chemical data were reported via hard copy data packages by the laboratory using Contract Laboratory Program-like forms. These packages were validated in accordance with EPA National Functional Guidelines by Level III criteria. A summary of validated data is included in Appendix C. The Data Validation Summary Report is included as Appendix D.

3.4 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping followed requirements specified in Section 4.13.2 of the SAP (IT, 2000). Sample containers, sample volumes, preservatives, and holding times for the analysis required in this SI are listed in Section 5.0, Table 5-1, of Appendix B of the SAP (IT, 2000). Sample documentation and chain of custody were recorded as specified in Section 4.13 of the SAP (IT, 2000).

Completed analysis request and chain of custody records (Appendix A) were secured and included with each shipment of sample coolers to Quanterra Environmental Services in Knoxville, Tennessee. Split samples were shipped to USACE South Atlantic Division Laboratory in Marietta, Georgia.

3.5 Investigation-Derived Waste Management and Disposal

Investigation-derived waste (IDW) was managed and disposed of as outlined in Appendix D of the SAP (IT, 2000). The IDW generated from the field sampling at the Former Transformer near Building 3798, Parcel 57Q was segregated as follows:

- X Decontamination water
- X Personal protective equipment (PPE)

Solid IDW (PPE) was stored inside the fenced area surrounding Buildings 335 and 336 in lined rolloff bins prior to characterization and final disposal. Solid IDW was characterized using toxicity characteristic leaching procedure analyses. Based on the results, PPE generated during

the SI at the Former Transformer near Building 3798, Parcel 57Q was disposed as non-regulated waste at the Industrial Waste Landfill on the Main Post of FTMC.

Liquid IDW was contained in a 500-gallon polyethylene tank prior to characterization and disposal. Liquid IDW was characterized by volatile organic compounds, semivolatile organic compounds, and metals analyses. Based on the analyses, liquid IDW was discharged as non-regulated waste to the FTMC wastewater treatment plant on the Main Post.

3.6 Variances/Non-Conformances

3.6.1 Variances

One variance to the SFSP was recorded during completion of the SI at the Former Transformer near Building 3798, Parcel 57Q. The variance did not alter the intent of the investigation or the sampling rationale presented in Table 4-2 of the SFSP (IT, 1998a). The variance to the SFSP is summarized in Table 3-3 and included in Appendix E.

3.6.2 Non-Conformances

There were no non-conformances to the SFSP recorded during completion of the SI at the Former Transformer near Building 3798, Parcel 57Q.

3.7 Data Quality

The field sample results data are presented in tabular form in Appendix C. The field sample was collected, documented, handled, analyzed, and reported in a manner consistent with the work plan; the FTMC SAP and QAP; and standard, accepted methods and procedures. The sample collection log pertaining to the collection of the sample was reviewed and is included in Appendix A. As discussed in Section 3.6, there was one variance and no non-conformances identified in the field or during the review of the sample collection log that may have impacted the usability of the data.

Data Validation. A complete (100 percent) Level III data validation effort was performed on the reported analytical data. Appendix D consists of a data validation summary report that was prepared to discuss the results of the validation. Selected results were rejected or otherwise qualified based on the implementation of accepted data validation procedures and practices. These qualified parameters are highlighted in the report. The validation-assigned qualifiers were added to the FTMC ITEMS database for tracking and reporting. The qualified data were used in

Table 3-3

Variance to the Site-Specific Field Sampling Plan
Former Transformer Near Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama

Variance to the SFSP	Justification for Variance	Impact to Site Investigation
The surface soil sample was not analyzed for chlorinated pesticides as proposed in the site-specific field sampling plan (SFSP).	The potential for contamination in soil is based on the former presence of an electrical transformer attached to a utility pole near Building 3798. Chlorinated pesticides are not associated with transformers and do not pose an environmental hazard at the parcel.	None.

the comparison to the SSSLs and ESVs developed by IT. Rejected data (assigned an "R" qualifier) were not used in the comparison to the SSSLs and ESVs.

The data presented in this report, except where qualified, meet the principle data quality objective for this SI.

4.0 Site Characterization

The SI performed at the Former Transformer near Building 3798, Parcel 57Q provided surface soil data used to characterize potential chemical contamination at the site. The regional and site geology has been described by others and is presented in the following sections.

4.1 Regional and Site Geology

4.1.1 Regional Geology

Calhoun County includes parts of two physiographic provinces, the Piedmont Upland Province and the Valley and Ridge Province. The Piedmont Upland Province occupies the extreme eastern and southeastern portions of the county and is characterized by metamorphosed sedimentary rocks. The generally accepted range in age of these metamorphics is Cambrian to Devonian.

The majority of Calhoun County, including the Main Post of FTMC, lies within the Appalachian fold and thrust structural belt (Valley and Ridge Province) where southeastward-dipping thrust faults with associated minor folding are the predominant structural features. The fold and thrust belt consists of Paleozoic sedimentary rocks that have been asymmetrically folded and thrust-faulted with major structures and faults striking in a northeast-southwest direction. Northwestward transport of the Paleozoic rock sequence along the thrust faults has resulted in the imbricate stacking of large slabs of rock referred to as thrust sheets. Within an individual thrust sheet, smaller faults may splay off the larger thrust fault, resulting in imbricate stacking of rock units within an individual thrust sheet (Osborne and Szabo, 1984). Geologic contacts in this region generally strike parallel to the faults and repetition of lithologic units is common in vertical sequences. Geologic formations within the Valley and Ridge Province portion of Calhoun County have been mapped by Warman and Causey (1962), Osborne and Szabo (1984), and Moser and DeJarnette (1992), and vary in age from Lower Cambrian to Pennsylvanian.

The basal unit of the sedimentary sequence in Calhoun County is the Cambrian Chilhowee Group. The Chilhowee Group is comprised of the Cochran, Nichols, Wilson Ridge, and Weisner Formations (Osborne and Szabo, 1984), but in Calhoun County is either undifferentiated or divided into the Cochran and Nichols Formations and an upper undifferentiated Wilson Ridge and Weisner Formation. The Cochran is composed of poorly sorted arkosic sandstone and conglomerate with interbeds of greenish-gray siltstone and mudstone. Massive to laminated, greenish-gray and black mudstone makes up the Nichols Formation with thin interbeds of

siltstone and very fine-grained sandstone (Szabo et al., 1988). These two formations are mapped only in the eastern part of the county.

The Wilson Ridge and Weisner Formations are undifferentiated in Calhoun County and consist of both coarse-grained and fine-grained clastics. The coarse-grained facies appear to dominate the unit and consists primarily of coarse-grained, vitreous quartzite, and friable, fine- to coarse-grained, orthoquartzitic sandstone, both of which locally contain conglomerate. The fine-grained facies consists of sandy and micaceous shale and silty, micaceous mudstone which are locally interbedded with the coarse clastic rocks. The abundance of orthoquartzitic sandstone and quartzite suggests that most of the Chilhowee Group bedrock in the vicinity of FTMC belongs to the Weisner Formation (Osborne and Szabo, 1984).

The Cambrian Shady Dolomite overlies the Weisner Formation northeast, east and southwest of the Main Post and consists of interlayered bluish-gray or pale yellowish-gray sandy dolomitic limestone and siliceous dolomite with coarsely crystalline porous chert (Osborne et al., 1989). A variegated shale and clayey silt have been included within the lower part of the Shady Dolomite (Cloud, 1966). Material similar to this lower shale unit was noted in core holes drilled by the Alabama Geologic Survey on FTMC (Osborne and Szabo, 1984). The character of the Shady Dolomite in the FTMC vicinity and the true assignment of the shale at this stratigraphic interval are still uncertain (Osborne, 1999).

The Rome Formation overlies the Shady Dolomite and locally occurs to the northwest and southeast of the Main Post as mapped by Warman and Causey (1962) and Osborne and Szabo (1984), and immediately to the west of Reilly Airfield (Osborne and Szabo, 1984). The Rome Formation consists of variegated thinly interbedded grayish-red-purple mudstone, shale, siltstone, and greenish-red and light gray sandstone, with locally occurring limestone and dolomite. The Conasauga Formation overlies the Rome Formation and occurs along anticlinal axes in the northeastern portion of Pelham Range (Warman and Causey, 1962), (Osborne and Szabo, 1984) and the northern portion of the Main Post (Osborne et al., 1997). The Conasauga Formation is composed of dark-gray, finely to coarsely crystalline medium- to thick-bedded dolomite with minor shale and chert (Osborne et al., 1989).

Overlying the Conasauga Formation is the Knox Group, which is composed of the Copper Ridge and Chepultepec dolomites of Cambro-Ordovician age. The Knox Group is undifferentiated in Calhoun County and consists of light medium gray, fine to medium crystalline, variably bedded

to laminated, siliceous dolomite and dolomitic limestone that weathers to a chert residuum (Osborne and Szabo, 1984). The Knox Group underlies a large portion of the Pelham Range area.

The Ordovician Newala and Little Oak Limestones overlie the Knox Group. The Newala Limestone consists of light to dark gray, micritic, thick-bedded limestone with minor dolomite. The Little Oak Limestone is comprised of dark gray, medium- to thick-bedded, fossiliferous, argillaceous to silty limestone with chert nodules. These limestone units are mapped together as undifferentiated at FTMC and other parts of Calhoun County. The Athens Shale overlies the Ordovician limestone units. The Athens Shale consists of dark-gray to black shale and graptolitic shale with localized interbedded dark gray limestone (Osborne et al., 1989). These units occur within an eroded "window" in the uppermost structural thrust sheet at FTMC and underlie much of the developed area of the Main Post.

Other Ordovician-aged bedrock units mapped in Calhoun County include the Greensport Formation, Colvin Mountain Sandstone, and Sequatchie Formation. These units consist of various siltstones, sandstones, shales, dolomites and limestones, and are mapped as one, undifferentiated unit in some areas of Calhoun County. The only Silurian-age sedimentary formation mapped in Calhoun County is the Red Mountain Formation. This unit consists of interbedded red sandstone, siltstone, and shale with greenish-gray to red silty and sandy limestone.

The Devonian Frog Mountain Sandstone consists of sandstone and quartzitic sandstone with shale interbeds, dolomudstone, and glauconitic limestone (Szabo et al., 1988). This unit locally occurs in the western portion of Pelham Range.

The Mississippian Fort Payne Chert and the Maury Formation overlie the Frog Mountain Sandstone and are composed of dark- to light-gray limestone with abundant chert nodules and greenish-gray to grayish-red phosphatic shale with increasing amounts of calcareous chert toward the upper portion of the formation (Osborne and Szabo, 1984). These units occur in the northwestern portion of Pelham Range. Overlying the Fort Payne Chert is the Floyd Shale, also of Mississippian Age, which consists of thin-bedded, fissile brown to black shale with thin intercalated limestone layers and interbedded sandstone. Osborne and Szabo (1984) reassigned the Floyd Shale, which was mapped by Warman and Causey (1962) on the Main Post of Fort McClellan, to the Ordovician Athens Shale on the basis of fossil data.

The Jacksonville Thrust Fault is the most significant structural geologic feature in the vicinity of FTMC, both for its role in determining the stratigraphic relationships in the area and for its contribution to regional water supplies. The trace of the fault extends northeastward for approximately 39 miles between Bynum, Alabama and Piedmont, Alabama. The fault is interpreted as a major splay of the Pell City fault (Osborne and Szabo, 1984). The Ordovician sequence comprising the Eden thrust sheet is exposed at FTMC through an eroded "window" or "fenster" in the overlying thrust sheet. Rocks within the window display complex folding with the folds being overturned, and tight to isoclinal. The carbonates and shales locally exhibit well-developed cleavage (Osborne and Szabo, 1984). The FTMC window is framed on the northwest by the Rome Formation, north by the Conasauga Formation, northeast, east, and southwest by the Shady Dolomite, and southeast and southwest by the Chilhowee Group (Osborne et al., 1997).

4.1.2 Site Geology

The soils at this site are classified as Anniston and Allen gravelly loams, 6 to 10 percent slopes, eroded (AcB2) category. This unit consists of friable soils that have developed in old alluvium washed from sandstone and shale onto foot slopes and along the base of mountains. The texture of subsoil ranges from light-gray loam to clay or silty clay loam. The alluvium ranges in thickness from 2 feet to more than 8 feet and is underlain by highly fractured limestone and shale. Infiltration and runoff are medium, permeability is moderate, and the capacity for available moisture is high (U.S. Department of Agriculture, 1961).

Bedrock beneath the Parcel 57Q has been mapped as the Shady Dolomite (Osborne et al., 1989). There were not any borings advanced during the SI at Parcel 57Q that penetrated bedrock.

4.2 Site Surface Hydrology

Precipitation in the form of rainfall averages about 54 inches annually in Anniston, Alabama with infiltration rates annually exceeding evapotranspiration rates. The major surface water features at the Main Post of FTMC include Remount Creek, Cane Creek, and Cave Creek. These waterways flow in a general northwest to westerly direction towards the Coosa River on the western boundary of Calhoun County.

5.0 Summary of Analytical Results

One surface soil sample was collected at the Former Transformer near Building 3798, Parcel 57Q and analyzed for PCBs. The surface soil sample was collected from the upper 1-foot of soil at the location shown on Figure 3-1. The results indicate that Aroclor 1260 was detected in the sample at a concentration of 0.026 milligrams per kilogram (mg/kg). The Aroclor 1260 result was compared to final SSSLs and ESVs developed by IT for human health and ecological risk evaluation as part of the on-going site investigations being performed under the BRAC environmental restoration program at FTMC.

The concentration of Aroclor 1260 detected in the surface soil sample exceeds the ESV but is below the residential human health SSSL (Table 5-1). The analytical result was flagged with a "J" data qualifier signifying that the result is greater than the method detection limit but below the specified reporting limit. There were not any other PCB aroclors detected in the sample. Complete analytical results are presented in Appendix C.

Table 5-1

Surface Soil Analytical Results
Former Transformer near Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama

Chemical	Human Health Screening Values: Resident Noncancer SSSL (mg/kg)	Human Health Screening Values: Resident Cancer SSSL (mg/kg)	Ecological Screening Values: USEPA Region IV Values[a] (mg/kg)	Ecological Screening Values: Supplemental Values (mg/kg)	FTB-57Q / FTB-57Q-GP01 / KL0001 / 31-Mar-99 / Start depth = 0 / End depth = 1: mg/kg	Qual	ValQual	>SSSL[b]	>ECV[b]
PCBs (Aroclor 1260)	NA	2.90E-01	2.00E-02	--	2.60E-02	J			YES

[a] U.S. Environmental Protection Agency (USEPA), Region IV, 1999. Waste Management Division Soil Screening Values for Hazardous Waste Sites. Online.
[b] Residential human health site-specific screening level (SSSL) and ecological screening value (ESV) as given in IT Corporation (2000), *Final Human Health and Ecological Screening Values and PAH Summary Report, Fort McClellan, Calhoun County*, *Alabama*, July.
J - Result is greater than stated method detection limit but less than or equal to specified reporting limit.
mg/kg - milligrams per kilogram
NA - Not available
PCBs - Polychlorinated biphenyls
Qual - Qualifier
ValQual - Validated qualifier

6.0 Summary and Conclusions and Recommendations

IT Corporation, under contract with the USACE, completed an SI at the Former Transformer near Building 3798, Parcel 57Q at FTMC, Calhoun County Alabama. The SI was completed under the BRAC Commission process to investigate and remediate federal properties prior to public domain transfer. The SI was performed following procedures outlined in the SFSP, approved by ADEM and EPA, Region IV. The SI consisted of the sampling and analyses of one surface soil sample. One variance to the SFSP was recorded during the completion of SI at the Former Transformer near Building 3798, Parcel 57Q; however, as summarized in Table 3-3, the variance did not impact the SI.

Analytical results were compared to final SSSLs and ESVs developed by IT as part of the human health and ecological risk evaluations associated with site investigations being performed under the BRAC environmental restoration program at FTMC. The results of the comparison indicate that PCB Aroclor 1260 was detected in the surface soil sample at a concentration (0.026 mg/kg) exceeding the ESV but below the residential human health SSSL. There were not any other aroclors detected in the sample.

The soil sample was collected at the base of a utility pole, which had formerly held an electrical transformer. The electrical transformer had been removed from the utility pole and a small area of soil excavated beneath the transformer. A confirmatory soil sample was collected to determine if PCBs were present in the soil. Because the affected area is small, the potential impact to ecological receptors is expected to be negligible. Therefore, IT proposes “No Further Action” at the Former Transformer near Building 3798, Parcel 57Q.

7.0 References

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ATTACHMENT 1

LIST OF ABBREVIATIONS AND ACRONYMS

List of Abbreviations and Acronyms

Abs	skin absorption
AC	hydrogen cyanide
AcB2	Anniston and Allen gravelly loams, 2 to 6 percent slopes, eroded
AcC2	Anniston and Allen gravelly loams, 6 to 10 percent slopes, eroded
AcD2	Anniston and Allen gravelly loams, 10 to 15 percent slopes, eroded
AcE2	Anniston and Allen gravelly loams, 15 to 25 percent slopes, eroded
ACGIH	American Conference of Governmental Industrial Hygienists
ADEM	Alabama Department of Environmental Management
AEL	airborne exposure limit
AL	Alabama
amb.	Amber
ANAD	Anniston Army Depot
APT	armor piercing tracer
ASP	Ammunition Supply Point
ASR	Archives Search Report, July 1999
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
B	analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero)
BCT	BRAC Cleanup Team
BFB	bromofluorobenzene
bgs	below ground surface
bkg	background
bls	below land surface
BOD	biological oxygen demand
BRAC	Base Realignment and Closure
Braun	Braun Intertec Corporation
BTEX	benzene, toluene, ethylbenzene, and xylenes
BTOC	below top of casing
BZ	breathing zone
C	ceiling limit value
Ca	carcinogen
CCAL	continuing calibration
CCB	continuing calibration blank
CD	compact disc
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CESAS	Corps of Engineers South Atlantic Savannah
CFC	chlorofluorocarbon
CG	cyanogen chloride
ch	inorganic clays of high plasticity
CK	carbonyl chloride
cl	inorganic clays of low to medium plasticity
Cl.	chlorinated
CLP	Contract Laboratory Program
CN	chloroacetophenone
CNB	chloroacetophenone, benzene, and carbon tetrachloride
CNS	chloroacetophenone, chloropicrin, and chloroform
COC	chain of custody
COE	Corps of Engineers
Con	skin or eye contact
CRL	certified reporting limit
CRZ	contamination reduction zone
CS	ortho-chlorobenzylidene-malononitrile
CSEM	conceptual site exposure model
ctr.	container
CWA	chemical warfare agent
CWM	chemical warfare materials, clear wide mouth
CX	dichloroformoxime
D	duplicate
DANC	decontamination agent, non-corrosive
ºC	degrees Celsius
ºF	degrees Fahrenheit
DDT	dichlorodiphenyltrichloroethane
DEP	depositional soil
DI	deionized
DIMP	di-isopropylmethylphosphonate
DMMP	dimethylmethylphosphonate
DOD	U.S. Department of Defense
DP	direct-push
DPDO	Defense Property Disposal Office
DQO	data quality objective
DRMO	Defense Reutilization and Marketing Office
DS	deep (subsurface) soil
DS2	Decontamination Solution Number 2
E&E	Ecology and Environment, Inc.
EBS	environmental baseline survey
Elev.	elevation
EM	electromagnetic
EM31	Geonics Limited EM31 Terrain Conductivity Meter
EM61	Geonics Limited EM61 High-Resolution Metal Detector
EOD	explosive and ordnance disposal
EODT	explosive and ordnance disposal team
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
EPIC	Environmental Photographic Interpretation Center
ER	equipment rinsate
ESE	Environmental Science and Engineering, Inc.
ESV	ecological screening value
E-W	east to west
EZ	exclusion zone
FB	field blank
FD	field duplicate
FedEx	Federal Express, Inc.
FFE	field flame expedient
Fil	filtered
Flt	filtered
FMP 1300	Former Motor Pool 1300 Site
Frtn	fraction
FS	field split
ft	feet
ft/ft	feet per foot
FTA	fire training area
FTMC	Fort McClellan
g	gram
G-856	Geometrics, Inc. G-856 magnetometer
G-858G	Geometrics, Inc. G-858G magnetic gradiometer
gal	gallon
gal/min	gallons per minute
GB	sarin
gc	clay gravels; gravel-sand-clay mixtures
GC	gas chromatograph
GC/MS	gas chromatograph/mass spectrometer
GFAA	graphite furnace atomic absorption
gm	silty gravels; gravel-sand-silt mixtures
gp	poorly graded gravels; gravel-sand mixtures
gpm	gallons per minute
GPR	ground-penetrating radar
GPS	global positioning system
GSBP	Ground Scar Boiler Plant
GSSI	Geophysical Survey Systems, Inc.
GW	groundwater
gw	well-graded gravels; gravel-sand mixtures
HA	hand auger
HCl	hydrochloric acid
HD	distilled mustard
HDPE	high-density polyethylene
Herb.	herbicides
HNO_3	nitric acid
hr	hour
H&S	health and safety
HSA	hollow stem auger
HTRW	hazardous, toxic, and radioactive waste
I	out of control, data rejected due to low recovery
ICAL	initial calibration
ICB	initial calibration blank
ICP	inductively-coupled plasma
ICS	interference check sample
ID	inside diameter
IDL	instrument detection limit
IDLH	immediately dangerous to life or health
IDW	investigation-derived waste
IMPA	isopropylmethyl phosphonic acid
in.	inch
Ing	ingestion

List of Abbreviations and Acronyms (Continued)

Inh	inhalation
IP	ionization potential
IPS	International Pipe Standard
IRDMIS	Installation Restoration Data Management Information System
IT	IT Corporation
ITEMS	IT Environmental Management System ™
J	estimated concentration
JeB2	Jefferson gravelly fine sandy loam, 2 to 6 percent slopes, eroded
JeC2	Jefferson gravelly fine sandy loam, 6 to 10 percent slopes, eroded
JfB	Jefferson stony fine sandy loam, 0 to 10 percent slopes have strong slopes
K	conductivity
L	lewisite; liter
LC_{50}	lethal concentration for 50 percent of population tested
LD_{50}	lethal dose for 50 percent of population tested
l	liter
LCS	laboratory control sample
LEL	lower explosive limit
LT	less than the certified reporting limit
max	maximum
MDL	method detection limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
mh	inorganic silts, micaceous or diatomaceous fine, sandy or silt soils
MHz	megahertz
µg/g	micrograms per gram
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µmhos/cm	micromhos per centimer
min	minimum
MINICAMS	miniature continuous air sampling system
ml	inorganic silts and very fine sands
mL	milliliter
mm	millimeter
MOGAS	motor vehicle gasoline
MPA	methyl phosphonic acid
MR	molasses residue
MS	matrix spike
mS/cm	milliSiemens per centimeter
MSD	matrix spike duplicate
msl	mean sea level
MtD3	Montevallo shaly, silty clay loam, 10 to 40 percent slopes , severely eroded
mV	millivolts
MW	monitoring well
N/A	not applicable; not available
NAD	North American Datum
NAD83	North American Datum of 1983
NAVD88	North American Vertical Datum of 1988
ND	not detected
NE	no evidence
NFA	No Further Action
ng/L	nanograms per liter
NGVD	National Geodetic Vertical Datum
NIC	notice of intended change
NIOSH	National Institute for Occupational Safety and Health
No.	number
NOAA	National Oceanic and Atmospheric Administration
NR	not requested
ns	nanosecond
N-S	north to south
nT	nanotesla
NTU	nephelometric turbidity unit
O&G	oil and grease
OD	outside diameter
OE	ordnance and explosives
oh	organic clays of medium to high plasticity
ol	organic silts and organic silty clays of low plasticity
OP	organophosphorus
OSHA	Occupational Safety and Health Administration
OWS	oil/water separator
oz	ounce
PAH	polynuclear aromatic hydrocarbon
Pb	lead
PCB	polychlorinated biphenyl
PCE	perchlorethene
PDS	Personnel Decontamination Station
PEL	permissible exposure limit
Pest.	pesticide
PG	professional geologist
PID	photoionization detector
PkA	Philo and Stendal soils local alluvium, 0 to 2 percent slopes
POL	petroleum, oils, and lubricants
PP	peristaltic pump
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
PPMP	Print Plant Motor Pool
ppt	parts per thousand
PSSC	potential site-specific chemical
pt	peat or other highly organic silts
PVC	polyvinyl chloride
QA	quality assurance
QA/QC	quality assurance/quality control
QAP	installation-wide quality assurance plan
QC	quality control
QST	QST Environmental Inc.
qty	quantity
Qual	qualifier
R	rejected
RCRA	Resource Conservation and Recovery Act
ReB3	Rarden silty clay loams
REG	field sample
REL	recommended exposure limit
RFA	request for analysis
RI	remedial investigation
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RSD	relative standard deviation
RTK	real-time kinematic
SAD	South Atlantic Division
SAE	Society of Automotive Engineers
SAIC	Science Applications International Corporation
SAP	installation-wide sampling and analysis plan
sc	clayey sands; sand-clay mixtures
Sch.	schedule
SD	sediment
SDG	sample delivery group
SDZ	safe distance zone
SEMS	Southern Environmental Management & Specialties
SFSP	site-specific field sampling plan
SGF	standard grade fuels
SHP	installation-wide safety and health plan
SI	site investigation
sm	silty sands; sand-silt mixtures
SOP	standard operating procedure
sp	poorly graded sands; gravelly sands
SP	sump pump
Ss	stony rough land, sandstone series
SS	surface soil
SSC	site-specific chemical
SSHO	site safety and health officer
SSHP	site-specific safety and health plan
SSSL	site-specific screening level
STB	supertropical bleach
STEL	short-term exposure limit
STOLS	Surface Towed Ordnance Locator System®
Std. units	standard units
SU	standard unit
SVOC	semivolatile organic compound
SW	surface water
SW-846	U.S. EPA *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*
SZ	support zone
TAL	target analyte list

TAT	turn around time
TB	trip blank
TCE	trichloroethene
TCL	target compound list
TCLP	toxicity characteristic leaching procedure
TDGCL	thiodiglycol
TDGCLA	thiodiglycol chloroacetic acid
TERC	Total Environmental Restoration Contract
TIC	tentatively identified compounds
TLV	threshold limit value
TN	Tennessee
TOC	top of casing, total organic carbon
TPH	total petroleum hydrocarbons
TRADOC	U.S. Army Training and Doctrine Command
TRPH	total recoverable petroleum hydrocarbons
TWA	time weighted average
UCL	upper confidence limit
UCR	upper certified range
UJ	not detected above reporting limit; result should be estimated
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center
USAEHA	U.S. Army Environmental Hygiene Agency
USAMCLS	U.S. Army Chemical School
USATEU	U.S. Army Technical Escort Unit
USATHAMA	U.S. Army Toxic and Hazardous Material Agency
USCS	Unified Soil Classification System
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
UXO	unexploded ordnance
VOA	volatile organic analyte
VOC	volatile organic compound
VOH	volatile organic hydrocarbon
VQlfr	validation qualifier
VQual	validated qualifier
VX	nerve agent (O-ethyl-S- [diisoproplaminoethyl]-methylphosphonothiolate)
Weston	Roy F. Weston, Inc.
WP	installation-wide work plan
WS	watershed
WSA	Watershed Screening Assessment
WWI	World War I
WWII	World War II
XRF	x-ray fluorescence
yd^3	cubic yards

APPENDIX A

SAMPLE COLLECTION LOGS

APPENDIX B

SURVEY DATA

Appendix B

Survey Data
Former Transformer near Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama

Sample Location	Northing	Easting	Ground Elevation (ft msl)	Top of Casing Elevation (ft msl)
FTB-57Q-GP01	1163802.536	659610.819	813.09	NA

Horizontal coordinates were referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum (NAD83), 1983

Elevations referenced to the North American Vertical Datum of 1988 (NAVD88).

ft msl - Feet mean sea level
NA - Not available, temporary well not installed.

Table X-X

Groundwater Elevations
Former Waste Chemical Storage Area, Parcels XX(x)
Fort McClellan, Calhoun County, Alabama

Well Location	Date	Depth to Water (ft BTOC)	Ground Elevation (ft msl)	Top of Casing Elevation (ft msl)	Groundwater Elevation (ft msl)

Elevations referenced to the North American Vertical Datum of 1988 (NAVD88).

BTOC - Below top of casing
ft - Feet
msl - Mean sea level

Table X-X

Groundwater and Surface Water Field Parameters
Site Investigation
Former Wast Chemical Storage Area, Parcel xx(x)
Fort McClellan, Calhoun County, Alabama

Sample Location	Date	Media	Specific Conductivity (umhos/cm)	Dissolved Oxygen (ppm)	Redox Potential (mV)	Temperature (^{o}C)	Turbidity (NTUs)	pH (Std units)

^{o}C - Degrees Celsius.
GW - Groundwater.
umhos/cm - Micromhos per centimeter.
mV - Millivolts.
NTUs - Nephtholometric turbidity units.
ppm - Parts per million.
Std units - Standard units.
SW - Surface water.
NR - Reading not recorded.

Table x-x

Temporary Well Construction Summary
Site investigation
Former Waste Chemical Storage Area, Parcel xx(x)
Fort McClellan, Calhoun County, Alabama

Temporary Well	Northing	Easting	Ground Elevation (ft msl)	TOC Elevation (ft msl)	Well Depth (ft bgs)	Screen Length (ft bgs)	Screen Interval (ft bgs)	Sump Interval (ft bgs)	Well Material
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	
							-	-	

All temporary wells installed with an auger drill rig using a 4 1/4-inch hollow-stem auger.
Horizontal coordinates were referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum (NAD83), 1983.
Elevations were referenced to the North American Vertical Datum of 1988 (NAVD88).
2" ID Sch. 40 PVC - 2-inch inside diameter, Schedule 40, polyvinyl chloride.
bgs - Below ground surface.
ft - Feet
msl - Mean sea level.
TOC - Top of casing.

APPENDIX C

SUMMARY OF VALIDATED ANALYTICAL DATA

APPENDIX D

DATA VALIDATION SUMMARY REPORT

Appendix D

Data Validation Summary Report for the Site Investigation Performed at the "Former Transformer near Building 3798" (Parcel - 57Q) Fort McClellan, Calhoun County, Alabama

D1.0 Introduction

Level III data validation was performed on 100% of the environmental samples collected at Parcel - 57Q. The analytical data consisted of one sample delivery group (SDG), PK155701, which was analyzed by Quanterra Incorporated. In addition, an evaluation of the field split data, which was analyzed by the USACE-SAD laboratory is included in this report. The chemical parameters for which the samples were analyzed, are identified below:

Parameter (Method)
PCBs by SW-846 8082

D2.0 Procedures

The sample data were validated following the logic identified in the *USEPA Contract Laboratory Program National Functional Guidelines For Organic Review (February 1994)* for all areas except Blanks. *Region III National Functional Guidelines for Organic Data Review (June 1992)* were applied to the areas associated with blank contamination. Specific quality control (QC) criteria, as identified in the Quality Assurance Plan (QAP), analytical methods, and laboratory Standard Operating Procedures (SOP) were applied to all sample results. As the result of the use of Update III SW846 test methods for the analytical data and the application of the CLP guidelines during the validation process, there were instances where specific QC requirements for all target compounds were not defined. This primarily occurred in the organic, Gas Chromatograph (GC) and Gas Chromatograph/Mass Spectra (GC/MS) calibration areas and is due to the fact that the analytical methods are "performance-based," and allows the use of average calibration responses, in lieu of, individual responses, which are defined by CLP

protocol. In light of applying CLP guidelines to SW846 methods and evaluating the usability of the data during the validation process, specific QC criteria were determined to address all target compounds and are identified in this report for each parameter, as well as, in the validation checklists, which function as worksheets. All completed validation checklists are on file in the Knoxville office. For those analytical methods not addressed by the CLP and Region III guidelines, the validation was based on the method requirements (I. e. SW846, CFR, SOPs) and technical judgement following the logic of the CLP validation guidelines.

D3.0 Summary of Data Validation Findings

The overall quality of the data was determined to be acceptable.

Individual validation reports have been prepared and the overall results of the validation findings are summarized in this report. The validation qualifier data entry verification report (Attachment A) is also provided. This is a complete listing of all of the analytical results and the validation qualifiers assigned for Parcel - 57Q. It also identifies the "use" column, which indicates which result to use in the event of a reanalysis. A listing of the validation qualifiers and the reason codes, along with their definitions is also found in Attachment A. The following section highlights the key findings of the data validation for each analysis.

D4.0 Analysis-Specific Data Validation Summaries

D4.1 PCBs by SW-846 8082

Overall, the data are of good quality and are usable as reported by the laboratory with the exceptions noted below. Data were reviewed for the following:

Holding Times. Technical holding time criteria were met for all project samples.

Initial and Continuing Calibration. All initial and continuing calibrations associated with the project samples met QC criteria.

Blanks. The 5X rule for contaminants found in the associated equipment rinses and method blanks was applied to all sample results. All were found to be acceptable.

Surrogate Recoveries. All surrogate recoveries are within acceptable QC ranges for the surrogates applied.

Matrix Spike/Matrix Spike Duplicate. MS/MSD and Laboratory Control Sample (LCS) was performed for the project samples and all QC criteria were met.

Field Duplicates. Original and field duplicate results were evaluated and no problems were identified.

Quantitation. Results quantified between the MDL and the RL, which the lab qualified as "J," were qualified as estimated "J" unless blank contamination was present or the results were rejected. Results rejected in favor of a preferred result (e.g., due to dilution or reanalysis) were qualified as rejected "R."

D5.0 Quality Assurance Field Split Sample Data Evaluation

Data from the quality assurance split samples supplied to IT by the USACE were reviewed for comparability to the original and field duplicate results. Relative percent differences were calculated and the results are summarized in this section.

Field Split Data for SDG PK155701

Original Sample ID KL0001	Field Dup ID KL0002	Field Split ID KL0003	Units	Compounds/ Elements	Original / Field Split RPD	% RSD
26	21	nd	mg/kg	Aroclor 1260	N/A	N/A

PCB. The FS lab reported no PCBs, however, original and FD samples detected Aroclor 1260 hits below the reporting limits. Differences attributed to non-homogeneity in soil samples and/or FS lab not reporting hits below the reporting limits.

ATTACHMENT A

DATA VALIDATION QUALIFIER ENTRY VERIFICATION REPORT

APPENDIX E

VARIANCES/NON-CONFORMANCES